

```

JJJ      000000000      BBBB BBBB BBBB      CCCCCCCCCC      TTTTTTTTTTTTTTTT      LLL
JJJ      00C000000      BBBB BBBB BBBB      CCCCCCCCCC      TTTTTTTTTTTTTTTT      LLL
JJJ      000000000      BBBB BBBB BBBB      CCCCCCCCCC      TTTTTTTTTTTTTTTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBBB BBBB BBBB      CCC      TTT      LLL
JJJ      000      000      BBBB BBBB BBBB      CCC      TTT      LLL
JJJ      000      000      BBBB BBBB BBBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJ      000      000      BBB      BBB      CCC      TTT      LLL
JJJJJJJJ  000000000      BBBB BBBB BBBB      CCCCCCCCCC      TTT      LLLLLLLLLLLLLLLLL
JJJJJJJJ  000000000      BBBB BBBB BBBB      CCCCCCCCCC      TTT      LLLLLLLLLLLLLLLLL
JJJJJJJJ  000000000      BBBB BBBB BBBB      CCCCCCCCCC      TTT      LLLLLLLLLLLLLLLLL

```

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SYSQUEDEF.SDL - System job queue on-disk structure

Version 'V04-000'

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++
{
FACILITY:

Job controller.

{
ABSTRACT:

This file contains the structure definitions for the system job queue.

{
ENVIRONMENT:

VAX/VMS operating system.

--
{

AUTHOR: Martin L. Jack, CREATION DATE: 16-Feb-1982

{
MODIFIED BY:

V03-005 JAK0209 J A Krycka 08-May-1984
Update SQH\$K_STRUCTURE_LEVEL value.

V03-004 JAK0205 J A Krycka 27-Apr-1984
Reserve space for in queue records for larger account name,
username fields, and broadcast name fields.

V03-003 JAK0204 J A Krycka 20-Apr-1984
Add paginate flags to SMQ, SJH, and SQR definitions for the
queue, job, and file records.

(V03-002 MLJ0118 Martin L. Jack, 23-Aug-1983
(Change names to conform to \$SJCDEF spelling.
(
(V03-001 MLJ0115 Martin L. Jack, 30-Jul-1983
(Changes for job controller baselevel.
(**

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```
module $SYSQUEDEF;
```

```
/*
/*      Definition of on-disk system job queue.
/*      General structure of all records.
/*
aggregate SYM structure prefix SYM$;
    LINK                                longword unsigned;
    TYPE                                byte unsigned;
    constant (
        SCX
        , SFM
        , SFX
        , SQH
        , SQX
        , SMQ
        , SJH
        , SQR
        , SRQ
        , ENTRY_BITMAP
        , CHECKPOINT
        , FILE_SETUP_MODULES
        , FORM_SETUP_MODULES
        , GENERIC_TARGET
        , JOB_RESET_MODULES
        , LOG_SPECIFICATION
        , NOTE
        , OPERATOR_REQUEST
        , PAGE_SETUP_MODULES
        , PARAMETERS
        , REFUSAL_REASON
    ) equals 1 increment 1;
    AUX_SEQUENCE                        byte unsigned;
    SEQUENCE                            word unsigned;
    ENTRY_NUMBER                        longword unsigned;
    #symhdrsiz = .;
    DATA                              character length 512-.;
end;
```

```
/*
/*      Header record, record 1 of file
/*
```

```
aggregate SQH structure prefix SQH$;
    constant RECNO equals 1;
    common header
    STRUCTURE_LEVEL                     byte dimension #symhdrsiz fill;
    constant STRUCTURE_LEVEL equals 4*256 + 1;
    fill 1
    CHARACTERISTIC_LIST                 word unsigned;
    ENTRY_BITMAP_VECTOR                 longword unsigned dimension 8;
    FORM_INDEX_LIST                     longword unsigned;
    FREE_LIST                           longword unsigned;
    HIGHEST_ENTRY_NUMBER                 longword unsigned;
    HIGHEST_RECORD                       longword unsigned;
    INCOMPLETE_SERVICE_LIST             longword unsigned;
```

```
/* link to next record in same list
/* record type
```

```
/*      characteristic index
/*      form
/*      form index
/*      header, record 1
/*      queue index
/*      queue
/*      job
/*      file
/*      incomplete service
/*      entry number bitmap
/*      auxiliary for SJH$T_CHECKPOINT
/*      auxiliary for SQR$T_FILE_SETUP_MODULES
/*      auxiliary for SFM$T_FORM_SETUP_MODULES
/*      auxiliary for SMQ$T_GENERIC_TARGET
/*      auxiliary for SMQ$T_JOB_RESET_MODULES
/*      auxiliary for SJH$T_LOG_SPECIFICATION
/*      auxiliary for SJH$T_NOTE
/*      auxiliary for SJH$T_OPERATOR_REQUEST
/*      auxiliary for SFM$T_PAGE_SETUP_MODULES
/*      auxiliary for SJH$T_PARAMETERS
/*      auxiliary for SJH$T_REFUSAL_REASON
```

```
/* list sequence for auxiliary list
/* list sequence for SQR record
/* job entry number
```

```
/* beginning of general data area
```

```
/* record number of this record
```

```
/* queue structure level
/*      V4.0 level 0
```

```
/* head of list of characteristic index records
/* vector of links to entry bitmap extension records
/* head of list of form index records
/* head of list of free records
/* highest entry number in bitmaps
/* highest record number in file
/* head of list of incomplete service descriptors
```

```

NEXT_ENTRY_NUMBER      longword unsigned;      /* next entry number to be tried
OPEN_LIST              longword unsigned;      /* head of list of open jobs
OPEN_LIST_END          longword unsigned;
PENDING_BATCH_LIST     longword unsigned;      /* head of list of pending batch jobs
PENDING_BATCH_LIST_END longword unsigned;
PENDING_PRINT_LIST     longword unsigned;      /* head of list of pending symbiont jobs
PENDING_PRINT_LIST_END longword unsigned;
QUEUE_INDEX_LIST       longword unsigned;      /* head of list of queue index records
TIMER_LIST             longword unsigned;      /* head of list of timed release jobs
TIMER_LIST_END         longword unsigned;
record_filter          byte dimension 256-. fill;
ENTRY_BITMAP           byte unsigned dimension 256;

end;

/*
/*      Characteristic index
/*
aggregate SCX structure prefix SCX$;
    constant ENTRIES equals 15;
    NAME
    NUMBER
end;
character length 32;
byte unsigned;

/* number of entries per block
/* characteristic name
/* characteristic number

/*
/*      Form index
/*
aggregate SFX structure prefix SFX$;
    constant ENTRIES equals 12;
    NAME
    NUMBER
    FORM_LINK
end;
character length 32;
longword unsigned;
longword unsigned;

/* number of entries per block
/* form name
/* form number
/* link to form record

/*
/*      Queue index
/*
aggregate SQX structure prefix SQX$;
    constant ENTRIES equals 12;
    NAME
    FLAGS
        BATCH
        EXECUTOR
        GENERIC_SELECTION
    end;
    QUEUE_LINK
end;
character length 32;
structure longword unsigned;
bitfield;
bitfield;
bitfield;
longword unsigned;

/* number of entries per block
/* queue name
/* batch queue
/* executor queue
/* queue can take jobs from generic queue
/* link to queue record

/*
/*      Form
/*
aggregate SFM structure prefix SFM$;
    common_header
end;
byte dimension #symhdrsiz fill;

```


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```

    OPERATOR_REQUEST      bitfield;          /* queue has a pending operator request
    PAUSED                bitfield;          /* queue is paused
    PAUSING               bitfield;          /* queue is pausing
    REMOTE                bitfield;          /* device is remote
    RESETING              bitfield;          /* queue is resetting
    RESUMING              bitfield;          /* queue is resuming
    STALLED               bitfield;          /* device is stalled
    STARTING              bitfield;          /* queue is starting
    STOPPED               bitfield;          /* queue is stopped
    STOPPING              bitfield;          /* queue is stopping
    UNAVAILABLE           bitfield;          /* device is unavailable
end;
ACM_BEGTIM              quadword;           /* time job began output
ACM_GETCNT              longword unsigned; /* read operations by symbiont
ACM_PAGECNT            longword unsigned; /* pages printed by symbiont
ACM_QIOCNT              longword unsigned; /* write operations by symbiont
ACM_SYMCPUTIM          longword unsigned; /* CPU used by symbiont
ASSIGNED_QUEUE_LINK    longword unsigned; /* link to assigned queue
CHARACTERISTICS        character length 16; /* characteristics mask
CPU_DEFAULT             longword unsigned; /* default CPU limit
CPU_MAXIMUM             longword unsigned; /* maximum CPU limit
CURRENT_LIST            longword unsigned; /* head of list of current jobs
CURRENT_LIST_END       longword unsigned;
DEVICE_NAME            character length 32; /* target device (ASCIC)
FORM_LINK              longword unsigned; /* link to form definition record
GENERIC_TARGET         longword unsigned; /* link to block of generic target queues
HOLD_LIST              longword unsigned; /* head of list of held jobs
HOLD_LIST_END          longword unsigned;
JOB_SIZE_MAXIMUM       longword unsigned; /* largest job this queue accepts
JOB_SIZE_MINIMUM      longword unsigned; /* smallest job this queue accepts
LIBRARY               character length 40; /* device control library file name (ASCIC)
NAME                  character length 32; /* queue name (ASCIC)
OWNER_UIC              longword unsigned; /* queue owner UIC
PROCESSOR             character length 40; /* symbiont file name (ASCIC)
STREAM_SCT            longword unsigned; /* pointer to symbiont control table
OPEN_JOB_COUNT        word unsigned;      /* count of jobs in open queue
PENDING_JOB_COUNT     word unsigned;      /* count of jobs in pending queue
PROTECTION            word unsigned;      /* queue protection
SYSID                 character length 6; /* target system ID
TIMER_JOB_COUNT       word unsigned;      /* count of jobs in timer queue
WSDEFAULT             word unsigned;      /* working set default
WSEXTENT              word unsigned;      /* working set extent
WSQUOTA               word unsigned;      /* working set quota
BASE_PRIORITY         byte unsigned;      /* process base priority
CURRENT_JOB_COUNT     byte unsigned;      /* count of jobs in current queue
JOB_LIMIT             byte unsigned;      /* maximum current jobs
STREAM_INDEX          byte unsigned;      /* stream index for this stream
JOB_RESET_MODULES     character length 6; /* job reset modules
record_filler         byte dimension 512-. fill;
end;

/*
/*      Job
/*
aggregate SJH structure prefix SJH$;

```



```

common_header
FLAGS
  CPU_MAXIMUM      bitfield; /* maximum CPU limit defined
  FILE_BURST        bitfield; /* default file burst page on all
  FILE_BURST_EXPLICIT bitfield; /* file burst default explicit
  FILE_BURST_ONE     bitfield; /* default file burst page on first
  FILE_FLAG          bitfield; /* default file flag page on all
  FILE_FLAG_EXPLICIT bitfield; /* file flag default explicit
  FILE_FLAG_ONE      bitfield; /* default file flag page on first
  FILE_TRAILER       bitfield; /* default file trailer page on all
  FILE_TRAILER_EXPLICIT bitfield; /* file trailer default explicit
  FILE_TRAILER_ONE   bitfield; /* default file trailer page on last
  LOG_DELETE         bitfield; /* delete batch log after printing
  LOG_NULL           bitfield; /* suppress batch log
  LOG_SPOOL          bitfield; /* spool batch log
  LOWERCASE          bitfield; /* job requires lowercase equipment
  NOTIFY             bitfield; /* notify user upon completion
  PAGINATE           bitfield; /* default file form feed at job level
  PAGINATE_EXPLICIT  bitfield; /* file form feed default explicit
  RESTART            bitfield; /* job can restart
  WSDEFAULT          bitfield; /* working set default defined
  WSEXTENT           bitfield; /* working set extent defined
  WSQUOTA            bitfield; /* working set quota defined
end;

STATUS
  ABORTED           bitfield; /* job was aborted
  ABORTING          bitfield; /* job is aborting
  DELETED           bitfield; /* job was deleted
  EXECUTING         bitfield; /* job is executing
  FILE_STARTING     bitfield; /* symbiont is starting a file
  HOLDING           bitfield; /* job is holding due to /HOLD
  OPEN             bitfield; /* job is open
  REFUSED           bitfield; /* job is holding due to symbiont request
  REQUEUE           bitfield; /* requeue job after abort
  REQUEUE_HOLD      bitfield; /* hold job after requeue
  RESTARTING        bitfield; /* job was partially executed
  RETAINED          bitfield; /* job was retained
  STARTING          bitfield; /* job is starting
  SYNCHRONIZE       bitfield; /* SYNCHRONIZE service in progress
  SYSTEM_FAILURE    bitfield; /* job was executing at a crash or queue reset
end;

ACCOUNT
  account_filler    character length 8; /* account of submitter
  debug_filler      byte dimension 24 fill; /* reserved for expansion of account field
  AFTER_TIME        byte dimension 100 fill; /* unused area for debug purposes
  CHARACTERISTICS    quadword; /* time of submission or AFTER time if later
  CLI               character length 16; /* characteristics mask
  COMPLETED_BLOCKS character length 40; /* CLI file name (ASCII)
  CONDITION_VECTOR  longword unsigned; /* completed blocks excluding current file
  CONDITION_1       longword unsigned; /* completion status
  CONDITION_2       longword unsigned;
  CONDITION_3       longword unsigned;
end;

CPU_MAXIMUM      longword unsigned; /* maximum CPU limit
CURRENT_FILE_CHKPT longword unsigned; /* current file checkpoint
CURRENT_FILE_LINK longword unsigned; /* link to file currently being processed

```



```

FILE_LIST          longword unsigned;      /* head of list of files
FILE_LIST_END      longword unsigned;      /* link to end of list of files
FORM_LINK          longword unsigned;      /* link to form definition record
JOB_SIZE           longword unsigned;      /* total size of all files in job
LOG_QUEUE_LINK     longword unsigned;      /* link to log queue
NAME               character length 40;     /* job name (ASCII)
PID                longword unsigned;      /* PID of submitter
QUEUE_LINK         longword unsigned;      /* link to queue
REQUEUE_QUEUE_LINK longword unsigned;      /* link to queue for requeue operation
TIME              quadword;               /* time of submission
UIC                longword unsigned;      /* UIC of submitter
USERNAME           character length 12;     /* username of submitter
username_filler    byte dimension 20 fill; /* reserved for expansion of username field
EXECUTOR_PID       longword unsigned;      /* PID of batch job
SYSID              character length 6;     /* system id of submitter
WSDEFAULT          word unsigned;          /* working set default
WSEXTENT           word unsigned;          /* working set extent
WSQUOTA            word unsigned;          /* working set quota
FILE_COPIES_CHKPT  byte unsigned;          /* file copy checkpoint
FILE_COPIES_DONE   byte unsigned;          /* number of copies of current file completed
JOB_COPIES         byte unsigned;          /* number of copies of job to print
JOB_COPIES_CHKPT   byte unsigned;          /* job copy checkpoint
JOB_COPIES_DONE    byte unsigned;          /* number of copies of job completed
PRIORITY           byte unsigned;          /* job priority
REQUEUE_PRIORITY   byte unsigned;          /* job priority for requeue
filler            byte fill;              /* spare
CHECKPOINT         character length 32;    /* executor checkpoint
LOG_SPECIFICATION  character length 6;     /* log file specification
NOTE               character length 6;     /* user note text
OPERATOR_REQUEST   character length 6;     /* operator request text
PARAMETERS         character length 32;    /* job parameters
REFUSAL_REASON     character length 6;     /* reason that symbiont refused job
record_filler      byte dimension 512-. fill;
end;

```

```

/*
/*      File
/*
aggregate SQR structure prefix SQR$:
common_header
FLAGS
    DELETE_FILE          bitfield;          /* delete file
    DELETE_PERMISSION    bitfield;          /* deletion permitted by file access
    DOUBLE_SPACE         bitfield;          /* double space output
    FILE_BURST           bitfield;          /* print file burst page
    FILE_BURST_EXPLICIT  bitfield;          /* file burst specification explicit
    FILE_FLAG            bitfield;          /* print file flag page
    FILE_FLAG_EXPLICIT   bitfield;          /* file flag specification explicit
    FILE_TRAILER         bitfield;          /* print file trailer page
    FILE_TRAILER_EXPLICIT bitfield;          /* file trailer specification explicit
    PAGE_HEADER          bitfield;          /* print page header
    PAGINATE             bitfield;          /* paginate output (issue form feed)
    PAGINATE_EXPLICIT    bitfield;          /* paginate output (issue form feed) explicit
    PASSALL              bitfield;          /* print file passall
end;

```



```

CONDITION_VECTOR
  CONDITION_1
  CONDITION_2
  CONDITION_3
end;
FILE_IDENTIFICATION
  FILE_ID_DVI
  FILE_ID_FID_NUM
  FILE_ID_FID_SEQ
  FILE_ID_FID_RVN
  FILE_ID_FID_RVN
  FILE_ID_FID_NMX
end;
  FILE_ID_DID_NUM
  FILE_ID_DID_SEQ
  FILE_ID_DID_RVN
  FILE_ID_DID_RVN
  FILE_ID_DID_NMX
end;
  FILE_SIZE
  FIRST_PAGE
  LAST_PAGE
  FILE_COPIES
  FILE_SETUP_MODULES
  FILE_SPECIFICATION
  record_filler
end;

/*
/*      Incomplete service descriptor
/*
aggregate SRQ structure prefix SRQ$;
  common_header
  FUNCTION_CODE
  constant (
    START_JOB
    , ABORT_JOB
    , SYNCHRONIZE_JOB
    , START_QUEUE
    , STOP_QUEUE
    , PAUSE_QUEUE
    , RESUME_QUEUE
    , RESET_QUEUE
    , BROADCAST_MESSAGE
    , RESPONSE
    , DELETE_FILES
    , START_SYMBIONT
  ) equals T increment 1;
  FLAGS
    NO_RESPONSE
    STALLED
  end;
  SENDING_SYSID
  RECEIVING_SYSID

structure;
  longword unsigned;
  longword unsigned;
  longword unsigned;

structure character length 28;
  character length 16;
  word unsigned;
  word unsigned;
  structure word unsigned;
  byte unsigned;
  byte unsigned;

word unsigned;
word unsigned;
structure word unsigned;
byte unsigned;
byte unsigned;

longword unsigned;
longword unsigned;
longword unsigned;
byte unsigned;
character length 6;
character length 256;
byte dimension 512-. fill;

/* conditions to print

/* file identification: DVI, FID, DID
/* DVI
/* FID

/* DID

/* file size in blocks
/* first page of file to print
/* last page of file to print
/* number of copies of file to print
/* file setup modules
/* file specification

byte dimension #symhdrsiz fill;
longword unsigned;

/* function code
/*      start a job
/*      abort a job
/*      synchronize on job
/*      start a queue
/*      stop a queue
/*      pause a queue
/*      resume a queue
/*      reset a queue
/*      broadcast a message
/*      return a response
/*      delete files in a job
/*      start a symbiont stream

structure longword unsigned;
bitfield;
bitfield;

/* no response required to service
/* service is waiting for an external action

character length 6;
character length 6;

/* system ID of sending node
/* system ID of receiving node

```

```
parameter_union
  standard
    P1
    P2
    P3
    P4
    P5
    SRB
  end;
  broadcast_message
    BRDCST_USERNAME
    brdcst_username_filler
    BRDCST_LENGTH
    BRDCST_TEXT
  end;
end;

end;

end_module $SYSQUEDEF;
```

```
union fill;
structure fill;
longword unsigned;
longword unsigned;
longword unsigned;
longword unsigned;
character length 64;
character length 0;

/* function-dependent parameters
/*
/*
/*
/*
/* service response block

/* broadcast username
/* reserved for expansion of brdcst_username
/* message length
/* message text
```


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